Annals and Magazine of Natural History

Series 2

ISSN: 0374-5481 (Print) (Online) Journal homepage: http://www.tandfonline.com/loi/tnah08

# Experimental researches upon the temperature of reptiles, and on the modifications which it undergoes under various circumstances

M.Aug. Duméril

**To cite this article:** M.Aug. Duméril (1852) Experimental researches upon the temperature of reptiles, and on the modifications which it undergoes under various circumstances, Annals and Magazine of Natural History, 10:60, 464-464, DOI: 10.1080/03745485609495745

**To link to this article:** http://dx.doi.org/10.1080/03745485609495745

Published online: 17 Dec 2009.

At the meeting of the "Académie des Sciences" on the 26th Oct., the following note from a M. Arnaud, who has travelled in Africa, was brought before the Academy:—

"From the inspection which I was able to make of the fly brought by Mr. Oswell, at the 'Société de Géographie,' it appeared to me that it was identical with that found in the Isle of Sennâr, between 15° and 11° N. latitude. Its repeated bites also kill the animals, which compels the keepers of herds, especially of oxen, to leave the country during the season in which it is most troublesome, that is to say, from January to May; they take refuge on the banks of the Nile, where this fly very rarely occurs.

"I have been bitten by one of these flies, and the wound resulting from its bite lasted more than four months with insupportable pain, which sometimes returns even now."—*Comptes Rendus*, Oct. 26, 1852, p. 603.

*Experimental Researches upon the Temperature of Reptiles, and on the modifications which it undergoes under various circumstances.* By M. Aug. Duméril.

From these experiments it appears that frogs have a proper temperature, superior to that of the water they inhabit. When this water has a temperature of 59° to 64° F., the difference in their favour was in no case less than 0·54° F. or more than 1·26° F. But when transported into much cooler water, this difference became much greater; thus the temperature of the frogs remained at 47·48° F., when the water in which they were immersed was only at 45·5° F. The raniform Batrachia therefore display a certain power of resistance to cold. M. Duméril has observed that this power was maintained as long as the temperature of the water was kept above the freezing-point, more especially when the cooling was not sudden; but when the temperature of the surrounding medium was reduced below this point, the frogs became congealed; this, however, did not always cause the death of the animals submitted to experiment. Thus the author has several times been able to revivify frogs which were in a complete state of rigidity, and the internal temperature of which was fully 1° below the freezing-point, by placing them in contact, first with melting ice, and then with water becoming gradually less and less cold.

Serpents have a proper temperature, which scarcely exceeds that of the medium which they inhabit. But in order to place this fact beyond all chance of error, it is necessary only to observe these reptiles at a period when neither digestion nor the change of skin is going on; the latter producing a diminution of temperature varying from 0·45° to 1·8° F., the operation of digestion, on the other hand, augmenting the temperature from 3·6° to 7·2° F.

M. Duméril has also proved that serpents offer less resistance to increased heat than the frogs; this is owing to the scaly covering of the former, which almost entirely prevents the cutaneous evaporation which takes place with so much facility through the naked skin of the Batrachians.—*Comptes Rendus*, May 31, 1852, p. 837.